



Armed Forces College of Medicine AFCM



Front of leg

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INTENDED LEARNING OBJECTIVES (ILO)



By the end of this lecture the student will be able to:

- ☐ Describe the attachments, action and nerve supply of muscles of front of leg
- ☐ Define attachment and structures passing behind extensor retinacula
- ☐ Describe root value, origin, course and branches of anterior tibial (deep peroneal) nerve
- ☐ State beginning, course and branches of anterior tibial artery

Lecture Plan

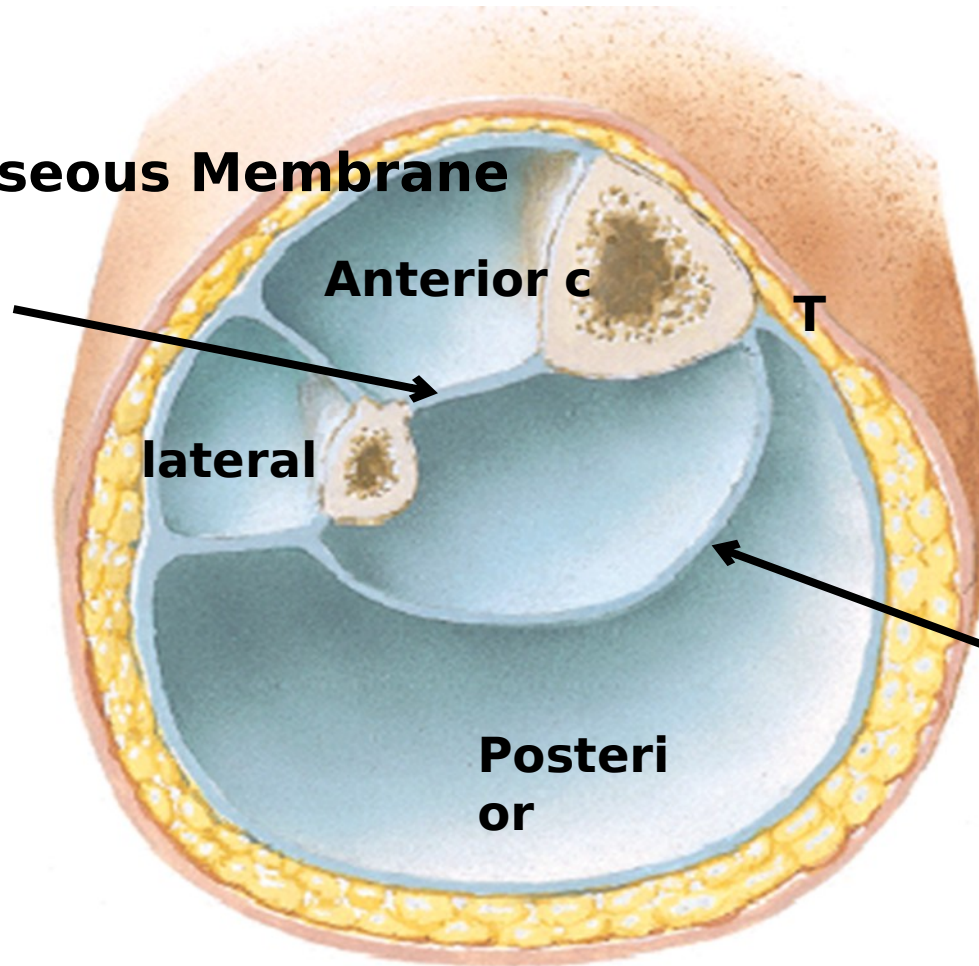


1. Part 1 : leg compartments
2. Part 2 : Tibialis anterior, extensor hallucis longus ,
extensor digitorum , peroneous tetruis
3. Part 3 : summary of anterior compartment
4. Lecture Quiz

Compartments of leg



Interosseous Membrane



Leg is divided into
1- anterior compartment
2- lateral compartment
3- posterior compartment

FASCIAL SEPTUM

<https://www.google.com/search?biw=1280&bih=689&tbm=isch&sa=1&ei>

Anterior compartment



1. **Muscles** : tibialis anterior, extensor hallucis, extensor digitorum longus , peroneus tertius muscle
2. **Nerve**: Anterior tibial nerve
3. **Vessel** :Anterior tibial vessels

Tibialis anterior



Origin : from the upper 2/3 of the lateral surface of tibia

Insertion : into the medial cuneiform bone and the base of first metatarsal bone

Tibialis anterior



<https://www.google.com/url?sa=i&source=images&cd=&cad=rja&uact=5>

Extensor hallucis longus



Origin : from the middle 2/4 of the medial surface of fibula.

Insertion : into the dorsum of the base of distal phalanx of the big toe.

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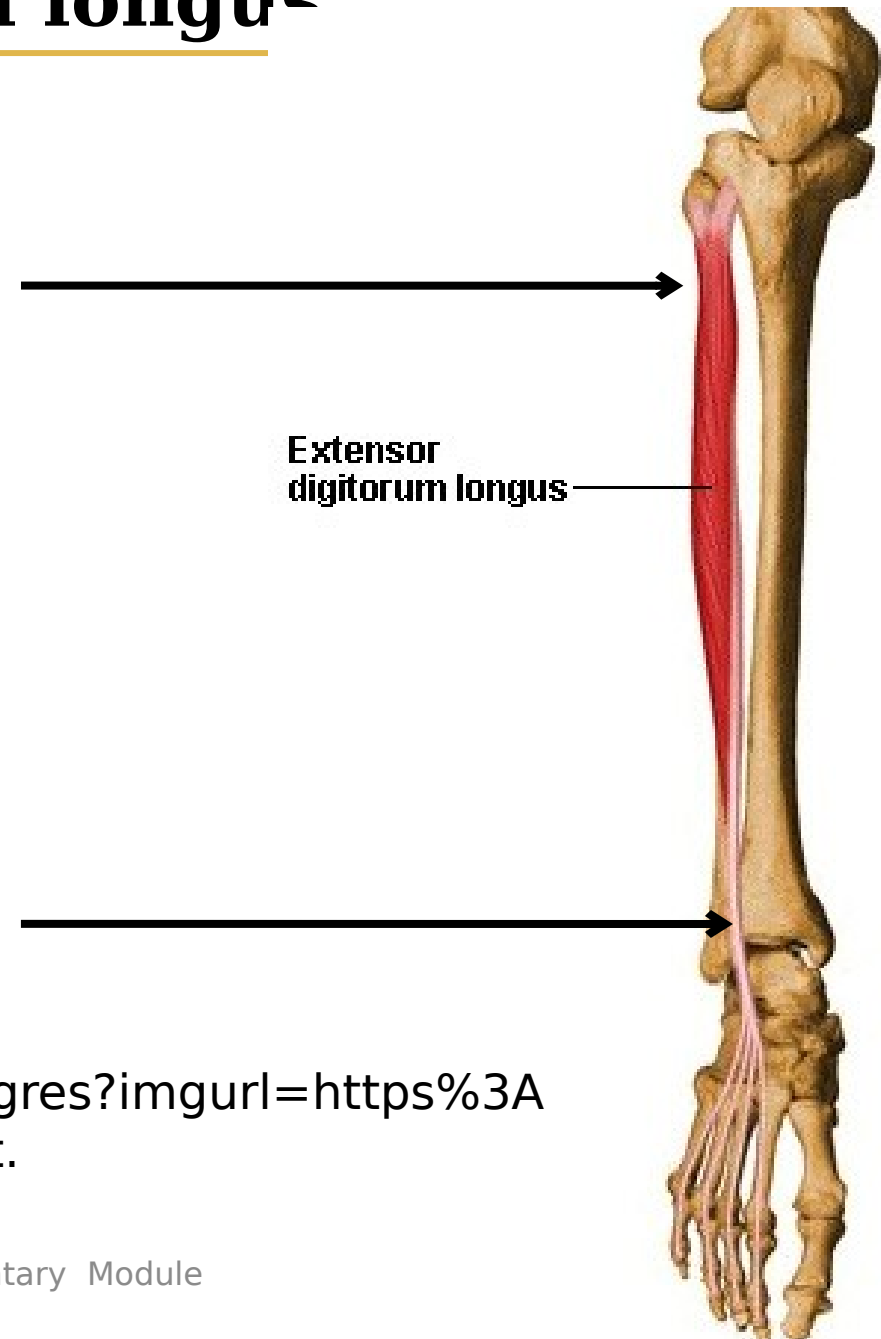
Extensor digitorum longus



Origin : from the upper 3/4 of the medial surface of fibula.

Insertion : by four tendons one for each of the lateral 4 toes by extensor expansion.

<https://www.google.com/imgres?imgurl=https%3A%2F%2Fwww.getbodysmart>.

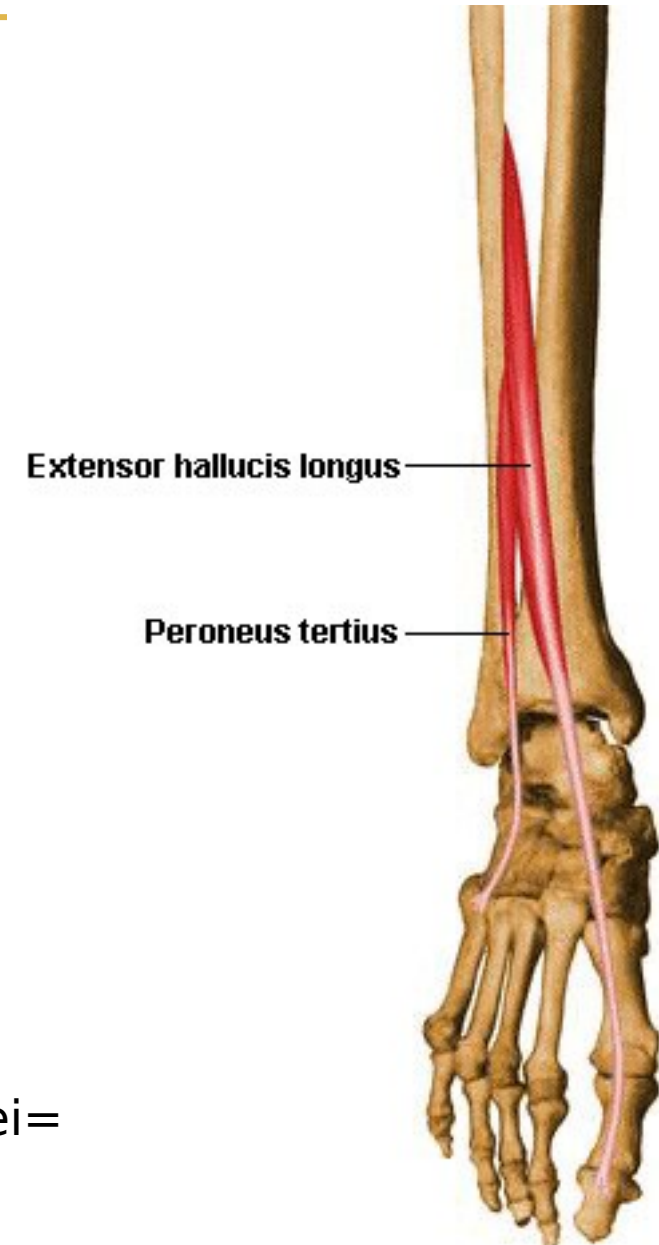


Peroneus tertius



Origin : from the lower 1/4 of the medial surface of fibula .

Insertion : into the dorsum of the base of fifth metatarsal bone .

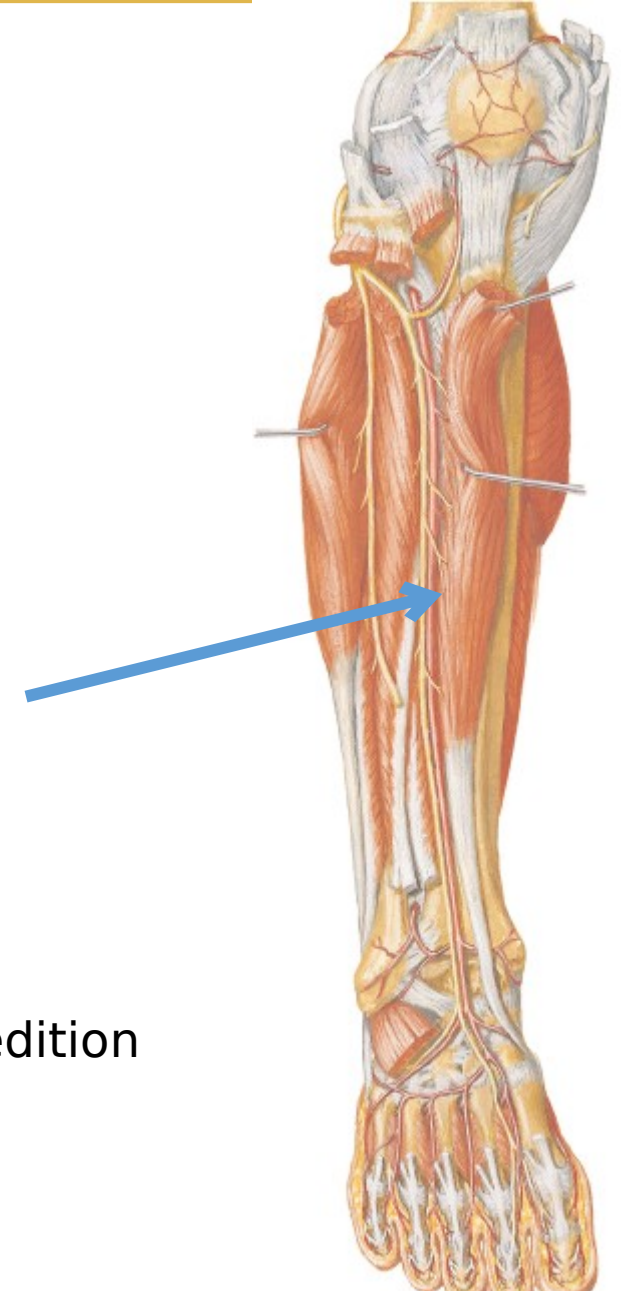


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Nerve supply



**All muscles of anterior compartment
are supplied by
Anterior tibial or deep peroneal nerve**

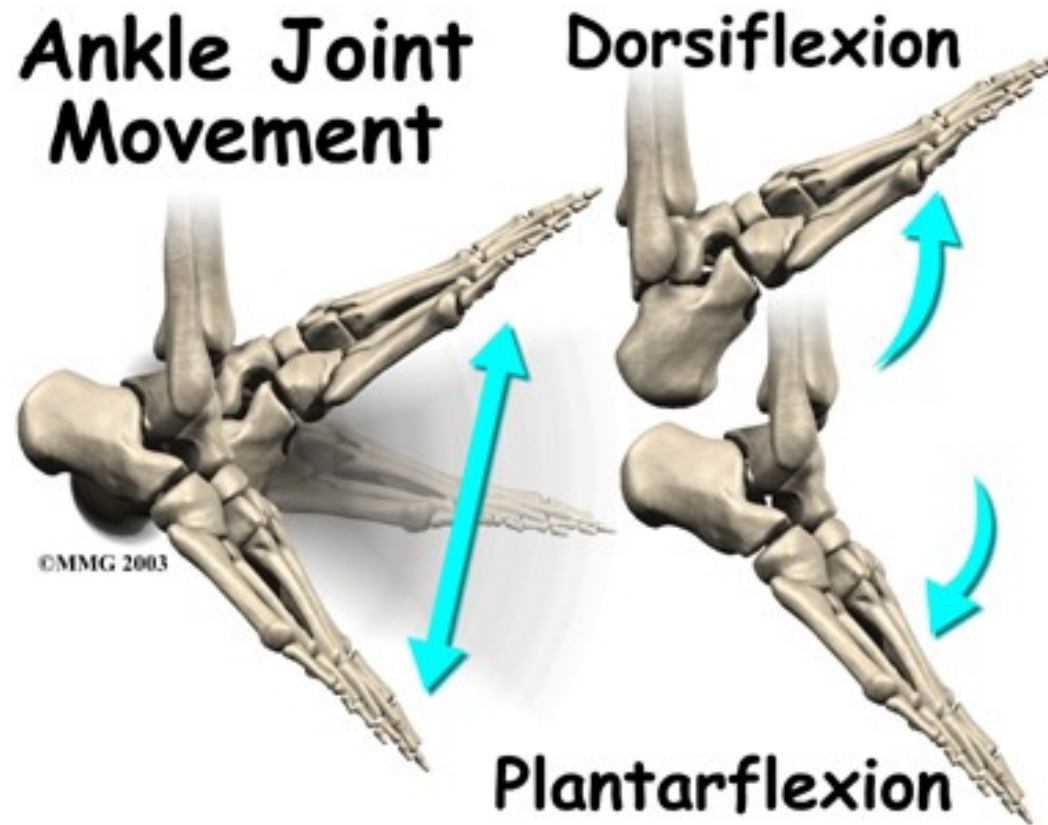


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Action of muscles of anterior compartment



muscles of anterior compartment produce dorsiflexion



Action of muscles of anterior compartment



1) *Tibialis anterior.*

important **invertor** of the foot when it is raised from the ground.

2) *Extensor hallucis longus:*

extends the metatarsophalangeal and interphalangeal joints of the big toe.

3) *Extensor digitorum longus:*

extends the metatarsophalangeal and interphalangeal joints of the lateral **4** toes.

4) *Peroneus tertius:*

eversion of the foot

Anterior tibial nerve



-It is one of the two terminal branches of the **common peroneal nerve**.

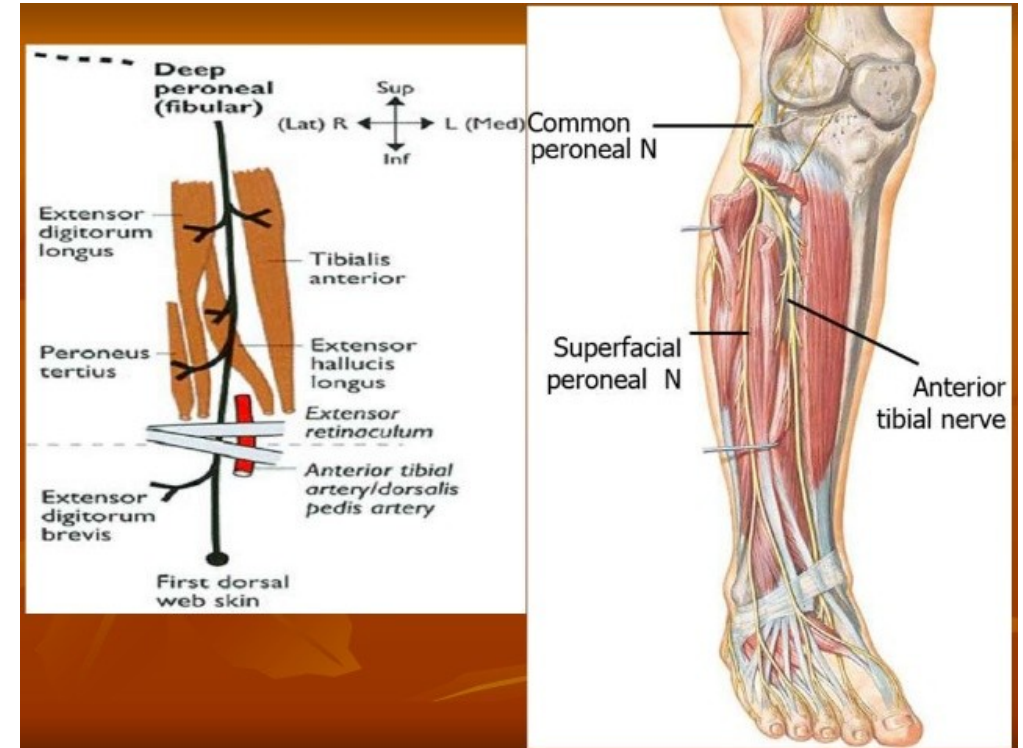
-it pierce the anterior intermuscular septum to reach anterior compartment .

-The nerve **lies lateral to the anterior tibial** vessels in the upper part of the leg then in **front** of the vessels then **lateral** to them in the lower part of the leg.

-lies under cover of the superior extensor retinaculum.

- It divides in the dorsum of the

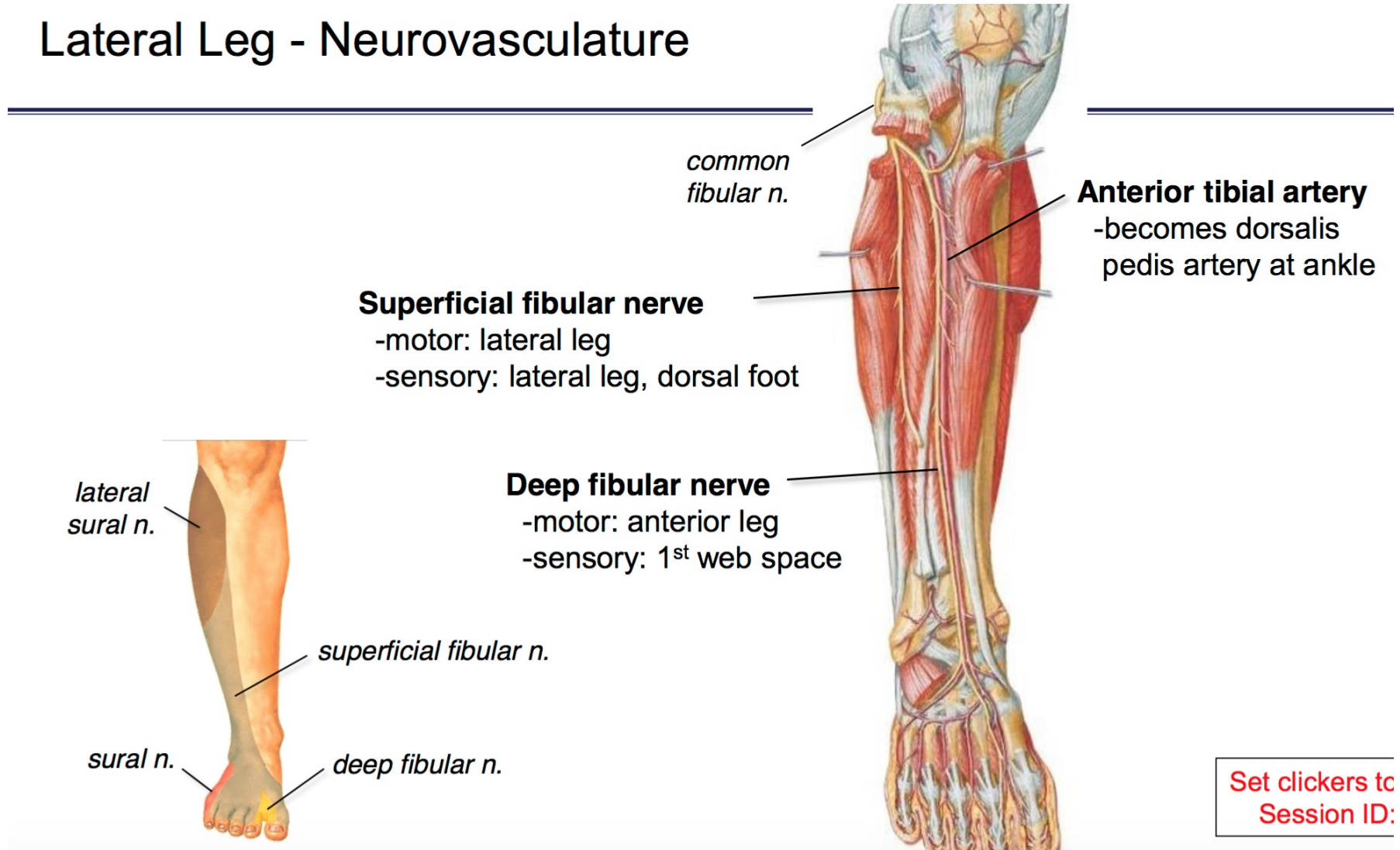
foot into **medial and lateral**



Anterior tibial nerve



Lateral Leg - Neurovasculature



Anterior tibial nerve



Terminal branches



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Branches of anterior tibial nerve



**Muscular to
all muscles
of the
anterior
compartment**

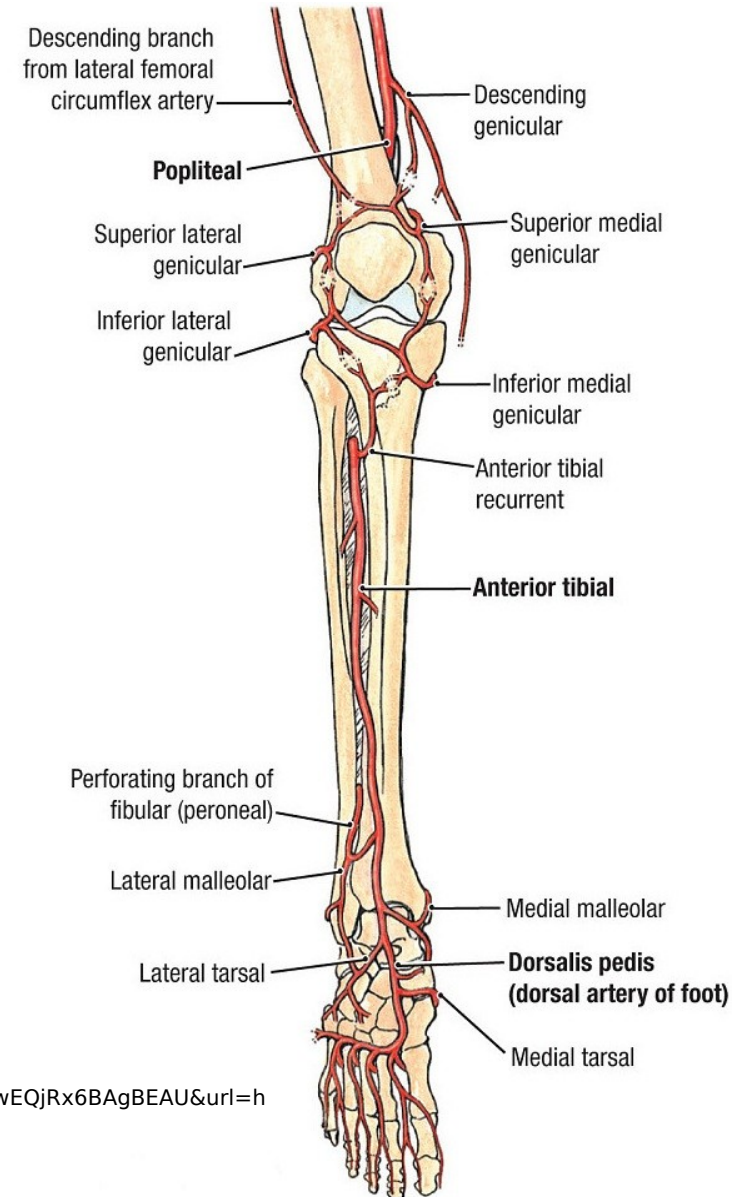
**Articular
to the
ankle
joint**

**Terminal
branches
Medial br. To
the skin of
adjacent sides
of big and
second toe
Lateral br. To
**extensor
digitorum
brevis muscle****

Anterior tibial artery



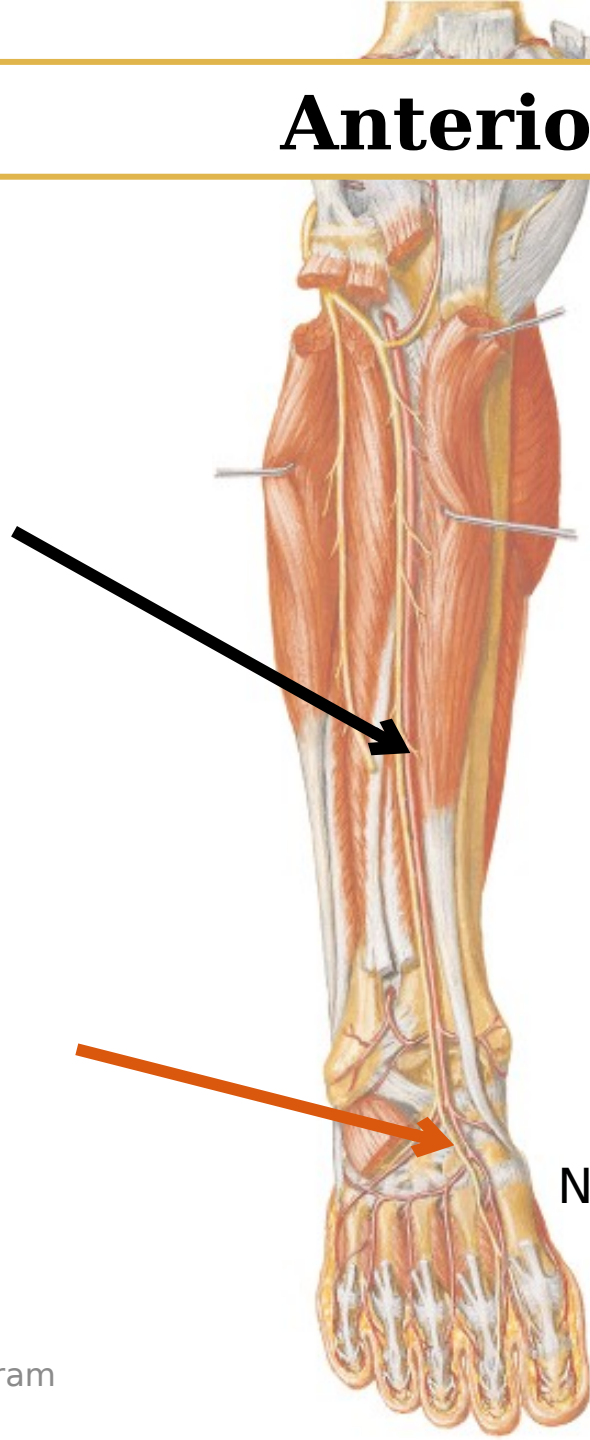
- ❑ -One of the 2 terminal brs. of the popliteal artery.
- ❑ -Begins at distal border of popliteus
- ❑ -It passes through an **opening** in the interosseous membrane to reach the anterior compartment.
- ❑ -In lower part of leg it lies between extensor hallucis longus and extensor digitorum



Anterior Tibial Artery



It continues as **dorsalis pedis** artery by passing in front of the ankle joint between 2 malleoli .



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Branches of Anterior Tibial Artery



Branches

Anterior and posterior **tibial recurrent** arteries

▪ Share in anastomosis around knee

Muscular branches

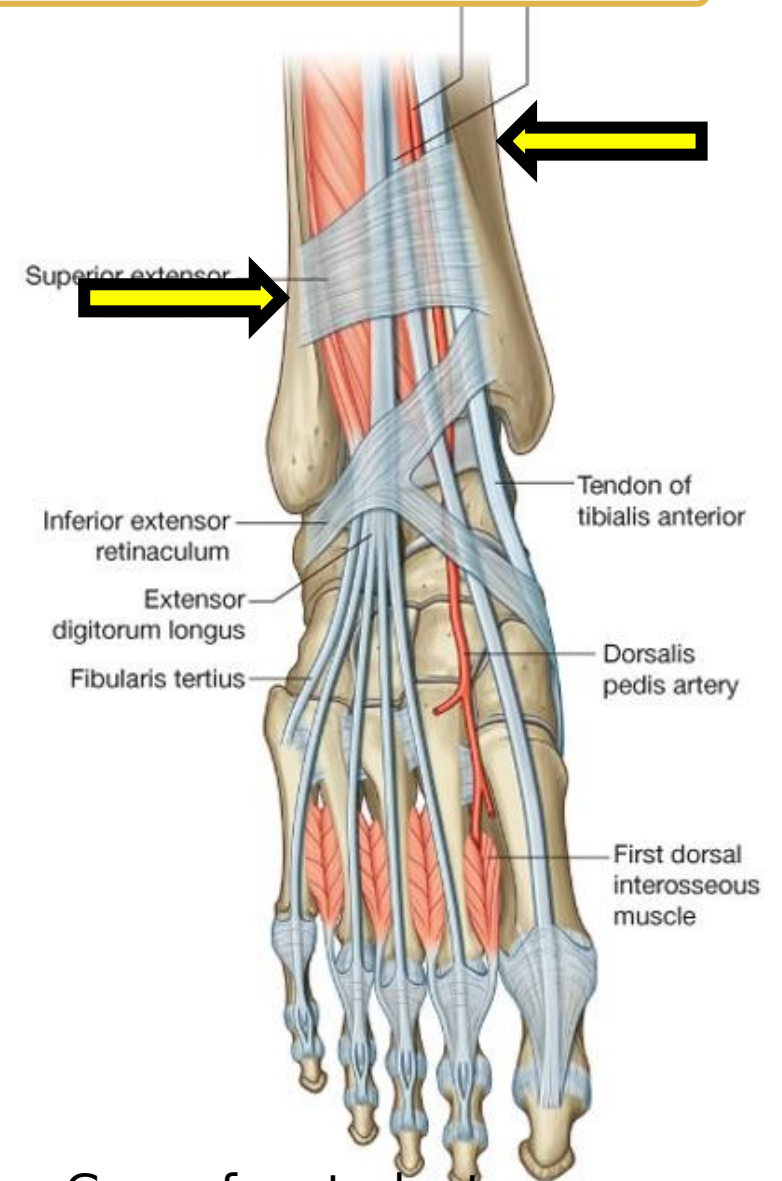
Anterior **medial** and anterior lateral **malleolar** arteries .
Share in anastomosis around ankle

Superior extensor retinaculum



Superior extensor retinaculum:

- ❖ Thickened band of deep fascia extends from the **lower part** of the anterior border of **tibia** to **lower part** of the anterior border of **fibula**.



Grays for students

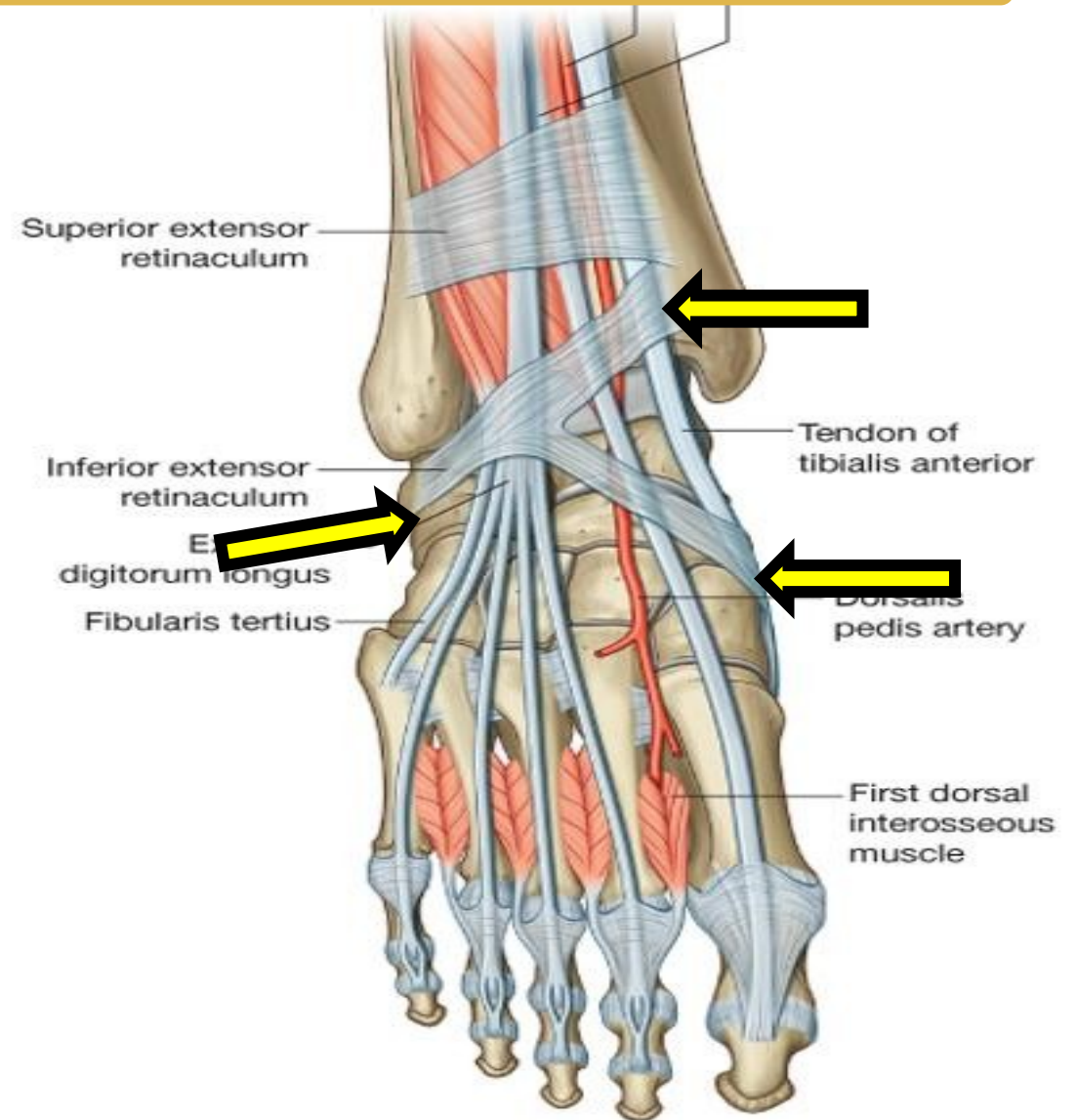
inferior extensor retinaculum



inferior extensor retinaculum

Y shaped :the stem laterally is attached to the upper surface of calcaneus

-Medially the proximal band attached to the medial malleolus while the distal band attached to the planter



Structures deep to retinaculum

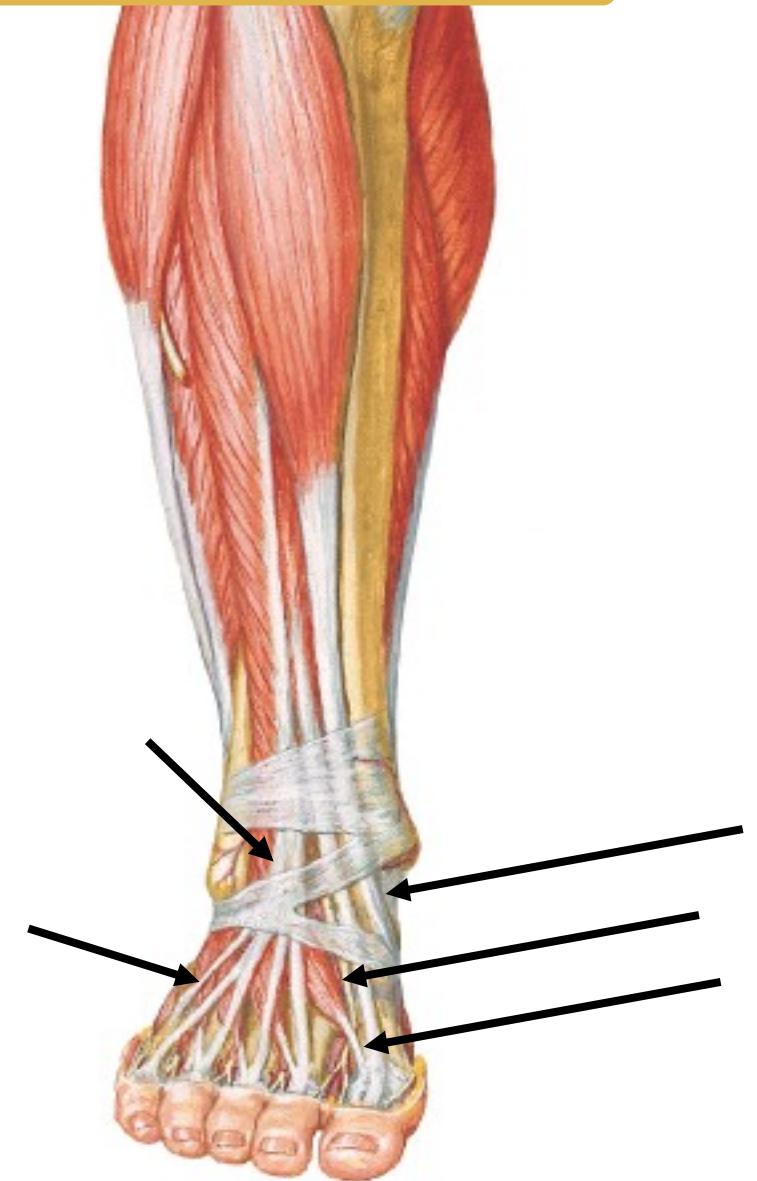


***Tom has very nice
dogs and pigs***

- ☐ **Tibialis
anterior**
- ☐ **Extensor
hallucis**
- ☐ **Anterior
tibial
vessels**
- ☐ **Anterior
tibial nerves**
- ☐ **Extensor
digitorum**
- ☐ **Peroneus
tertius**



Musculoskeletal and integumentary system



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Lecture Quiz



Question 1 A patient lost the ability to invert his foot the lesion affected which of the following muscles

- a) Tibialis anterior b) Peroneus longus c) extensor hallucis

Question 2

Enumerate branches of anterior tibial nerve

Question 3

Enumerate structures deep to extensor retinaculum

SUGGESTED TEXTBOOKS



1. (Regional anatomy by Richard Snell 9th edition)